SIPHONAPTERA COLLECTED IN THE DOLOMITES.

By DR. KARL JORDAN.

(With 6 text-figures.)

PRIOR to my visits to the Dolomites in 1922 and 1926 our collection contained no specimens of Siphonaptera from that district. For this reason I took advantage of every opportunity that offered itself during these holidays to collect small mammals and thus to obtain at least some of the fleas which occur in South Tirol. The list here published is a very short one, but it gives nevertheless an idea of what is found on the usual kinds of small mammals one meets with in the mountains. All the species collected, or closely allied forms, occur also in Switzerland. In the Southern ranges of the Dolomites and in the valleys one may expect to encounter Italian species. Mice and shrews were not very plentiful in the places at which we stayed long enough to make trapping feasible, and on the meadows above the tree-line only one mouse was common: *Microtus incertus*. The nests of this species are not difficult to dig out, but usually they are disappointing, as they generally yield only the common *Ceratophyllus penicilliger*. At Cortina d'Ampezzo I trapped a number of moles, but the weather was so rainy that there was nothing on them when I inspected the traps. *Evotomys nageri* is a woodland species, being fairly common in the wood on the eastern side of Lake Misurina, and *Microtus nivalis* occurs high up in rocky places where it is not too dry and in alpine huts.

1. **Ceratophyllus penicilliger** Grube (1852).

Common at higher elevations; its normal host in the Dolomites evidently is *Microtus incertus*.

Below Fedaja Pass, 1,900 m., and Schlern, 2400 m., vi.vii.1922, in nests of *Microtus incertus*.——Above Campo di Sotto, Cortina, 1,200 m., vi.1926, on *Evotomys nageri*.——Below Croda da Lago, vii.1926, 1,700 m., in nest of *Microtus incertus*.——Misurina, 1,750 m., vii.1926, off *Microtus agrestis*.——Monte Piano, 2,300 m., and Plätzwiese, 1,950 m., vii.1926, in nests of *M. incertus*.——Below Drei Zinnen Hütte, 2,350 m., vii.1926, off *Microtus nivalis*.

2. **Ceratophyllus gallinulae gallinulae** Dale (1878).

1 ♂ from: Faloria Alp, above Cortina, 1,300 m., vi.1926, in nest of *Emberiza citrinella*.

3. **Ceratophyllus gallinae** Schrank (1803).

A series bred in viii.1922 from nest of *Parus alpestris* found in vi. in the wood on the east side of the Sellajoch, approximately at 1,800 m.

This flea is a Palæarctic species occurring on various birds, being particularly plentiful in the nest of *Parus*; the domestic fowl I consider to be a secondary host. It is now common in the Eastern States of North America, but in the West the fowl has picked up another flea: *C. niger* Fox (1908).

4. **Ceratophyllus borealis** Roths. (1907).

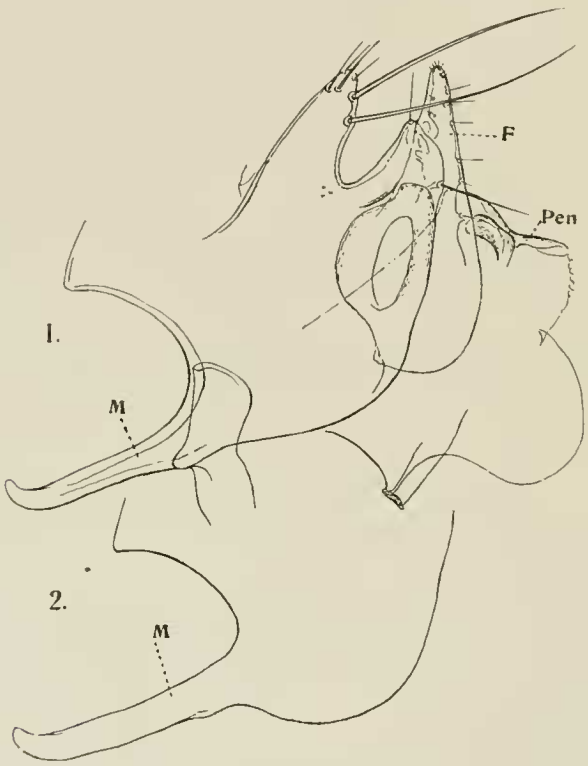
A pair from : Drei Zinnen Hütte, 2,400 m., vii. 1926, in nest of *Montifringilla nivalis*.

5. **Amphipsylla sepifera** J. & R. (1920).

One ♀ from : Monte Cadini, above Misurina, 2,200 m., vii. 1926, off *Microtus nivalis*.

6. **Ctenophthalmus agyrtes impavidus** subp. nov. (text-fig. 1).

♂. The bay above the manubrium of the clasper wider than in *Ct. agyrtes agyrtes* Heller (1896) ; the ventral margin of the clasper less rounded ; and



the apex of the exopodite narrower. We figure for comparison the manubrium and adjacent portions of the clasper of *Ct. a. agyrtes* (text-fig. 2).

♀. Apparently not different from *Ct. a. agyrtes*.

A large series from : Völs a. Schlern and Völser Weiher, 900–1,000 m., vi.vii. 1922, on *Microtus* and *Talpa europaea* : type.——Schlern, 2,400 m., vii. 1922, in nest of *Microtus incertus*.——Below Fedaja Pass, 1,600 m., vii. 1922, in nest of *M. incertus*.——Faloria Alp, above Cortina d'Ampezzo, 1,300 m., vi. 1926, on *M. incertus* and *Apodemus sylvaticus*.——Above Campo di Sotto, Cortina, vi. 1926, on *Evotomys nageri*.——*Misurina*, 1,750 m., on *Evotomys nageri* and *M. agrestis*, vi.vii. 1926.——Monte Cadini, above Misurina, 2,200 m., vii. 1926, on *Microtus nivalis*.

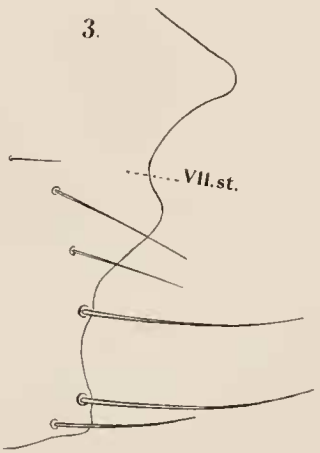
We do not yet know which subspecies of *Ct. agyrtes* occurs in North Tirol and Vorarlberg, South Bavaria and the Northern Cantons of Switzerland. *Ct. agyrtes orcadis* J. & R. (1920) extends at least as far north as Zürich, where N. C. Rothschild in 1920 and myself in 1925 obtained it in some numbers on the Dolder.

7. **Ctenophthalmus congener** Roths. (1907).

5♂♂, 17♀♀ from: below Croda da Lago, 1,700 m., vii.1926, in nest of *Microtus incertus*.——Misurina, 1,750 m., vi.vii.1926, on *Evotomys nageri* and *Talpa europaea*.——Monte Cadini, 2,200 m., vii.1926, on *Microtus nivalis*.——Plätzwiese, 1,950 m., vii.1926, in nests of *Microtus incertus*.

8. **Ctenopthalmus nivalis dolomiticus** subsp. nov. (text-fig. 3).

♀. Lobe of sternite VII less produced than in the more western races, the apical margin from this lobe downwards more oblique and distinctly incurved twice (fig. 3); the number of bristles in the row on this sternite varying from 4 to 7, one or two of them marginal. On ventral portion of tergite VIII from 13 to 17 bristles, the last bristle short and stout and placed above the last long one, sometimes two such short stout bristles instead of one.



3♀♀ from: Monte Cadini, above Misurina, 2,200 m., and below Drei Zinnen Hütte, 2,300 m., vii.1926, off *Microtus nivalis*.

This may turn out to be the ♀ of *Ct. orphilus* J. & R. (1923), from the Engadine, of which only the ♂ is known. I made a special effort at collecting *M. nivalis*; but as I found it only among the rocks at and above the tree-line, the inspection of the traps meant a stiff walk uphill of an hour and a half, which was apt to interfere with other excursions. I only obtained five specimens of the snow-mouse at the Monte Cadini; a sixth specimen I caught near the pass leading from the Drei Zinnen hut to Fischleinboden.

9. **Ctenophthalmus bisoctodentatus** Kolen. (1863).

5♂♂, 2♀♀ from: Völs a. Schlern, 950 m., vii.1922 and Misurina, 1,750 m., vii.1926, off Talpa *europaea*.

The ♀♀ have sternite VII divided by a sinus into a large upper lobe and a smaller lower one.

10. **Rhadinopsylla casta** sp. nov. (text-figs. 4, 5).

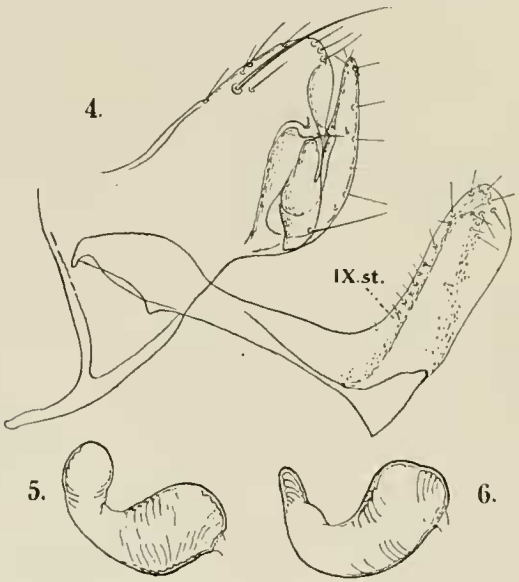
Rhadinopsylla spec., Jordan & Roths., Ectoparasites i. p. 109, sub. no. 34 (1920) (Zermatt).

When describing *Rh. mesa* J. & R. (1920), l.c., we said that we had two ♀♀ which showed certain differences from the ♀ of *Rh. mesa*, which we mentioned, and we added that we did not think it "advisable to give a name to the two examples in the absence of the other sex."

We now have, from the Dolomites, both sexes of this species and also an additional ♀ of *Rh. mesa* from Switzerland. These specimens leave no doubt that they are specifically distinct from *Rh. mesa*.

Genal comb with five spines. Prothoracic comb of 19 to 22 spines. Apical spines on abdomen more numerous than in *Rh. mesa* : 29 in both ♂♂ of the new species, and 15 in the only ♂ of *Rh. mesa* we have, in the ♀ of *Rh. mesa* 15 in one specimen and 22 in the other, in the ♀ of *Rh. casta* 27. The bristles on abdominal sternites III to VII less numerous than in *Rh. mesa* : in the ♂ of *Rh. mesa* 30, in the ♂♂ of *Rh. casta* 20 and 26 respectively, in the ♀♀ of *Rh. mesa* 46 and 50, and in the ♀ *Rh. casta* 31, 32 and 36.

Modified Segments :—♂ : clasper broader than in *Rh. mesa*, less narrowed towards apex and the ventral margin more rounded, ventricose ; manubrium



shorter. Sternite IX apically broader.——♀ : sinus of sternite VII smaller and less deep, the angle above the apical sinus of tergite VIII less projecting ; the stylet shorter. Body of spermatheca less narrowing towards tail than in *Rh. mesa*, and the tail broader near apex than at base, the apex being swollen and rounded (text-fig. 5). For comparison we figure the spermatheca of *Rh. mesa* (text-fig. 6), which has not been figured before.

2♂♂, 1♀ from : Monte Cadini, above Misurini, 2,200 m., vii. 1926, off *Microtus nivalis*.

The above-mentioned two Swiss ♀♀ and the one recorded l.c. p. 288 also belong here.

11. **Palaeopsylla kohauti** Dampf (1910).

Völs a. Schlern, 950 m., vii.1922, and Misurina, 1,750 m., vii.1926, off *Talpa europaea*, evidently common.

12. **Palaeopsylla sorecis** Dale (1878).

Völs a. Schlern, 950 m., vii.1922, on *Microtus* caught in a mole run.

13. **Doratopsylla cuspis** J. & R. (1915).

A small series of both sexes from: Völs a. Schlern, vii.1922, off *Talpa europaea*, and Misurina, 1,750 m., 30.vi.1926, off *Sorex araneus*.——Above Campo di Sotto, Cortina, 1,200 m., 22.vi.1926, on *Evotomys nageri*, one ♀.

The seventh abdominal sternite of the ♀ sometimes has a distinct apical sinus.

14. **Hystrichopsylla talpae** Curtis (1826).

A pair from: Misurina, 1,750 m., vii.1926, on *Microtus agrestis*.